

Application Serial No. 10/075,839

Attorney Docket No. PF010010

REMARKS

Claims 1-14 remain pending in this application with claims 5, 7 and 8 being amended and claims 15 and 16 being added by this response. Claims 15 and 16 are identical to claim 8 and are dependant on claims 2 and 3, respectively.

Objection to the Abstract

The abstract is objected to for certain informalities. The Abstract has been formally amended in accordance with the Examiner's comments to correct the mentioned informalities. In view of the amendments to the Abstract it is respectfully submitted that this objection is satisfied and should be withdrawn.

Objection to Claim 5 and Claim 7

Claims 5 and 7 are objected to for not being in the proper language. Claims 5 and 7 have been formally amended in accordance with the Examiner's comments to be in the proper language. In view of the amendments to Claims 5 and 7 it is respectfully submitted that this objection is satisfied and should be withdrawn.

Rejection of Claims 1-3, 8, 9 and 11-14 under 35 USC § 102

Claims 1-3, 8, 9, and 11-14 are rejected under 35 USC § 102(e), as being anticipated by Zhu (U.S. Patent No. 6,462,791).

The present invention provides a method and device for detecting the reliability of a field of movement vectors of one image in a sequence of video images. A stability parameter, Det_Stab(t), for the field is calculated. The parameter is based on a comparison (4), over two successive images, of the number of occurrences of the majority vectors of

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the movement-vectors fields of each of these images. A field is defined as stable if the variation in the number of occurrences lies within a predefined bracket. The reliability (7) is decided on the basis of this stability parameter. Independent claims 1 and 11 contain limitations similar to those discussed above.

Zhu discloses a method and apparatus for transmitting a plurality of images over a packet network. The Examiner suggests that Zhu (U.S. Patent 6,462,791) discloses (in FIG.5 and FIG.6, step S330) a comparison over two successive images, of the number of occurrences of the majority vectors of the motion vector fields of each of these images.

Figure 5 illustrates the process of selecting motion vectors. "The average of all the orientation angles...of all the motion vectors [or]...a simple majority voting process [selects the motion orientation A_{best}]" (col 4, lines 53-56). However, this motion orientation is used to "constrain motion vectors" (col 4, line 61) and not to calculate a reliability of a motion vector field as in the present claimed invention.

Moreover, Zhu fails to disclose the comparison of the number of occurrences, which is a main characteristic of our invention. The comparison referenced by the Examiner (step S330) is a comparison between a parameter of the majority vector and the corresponding parameter of the vectors allocated to the macroblocks. This comparison is done to choose either the majority vector or a null vector for the macroblock.

Fig. 6 illustrates the encoder motion estimation process. Step 320 carries out a selection of the best matched motion vector, using the majority voting process in region R_i (column 5, lines 39-40). The majority voting process consists of classifying the vectors into groups of identical vectors based in a predefined measure, choosing the group having the most similar vector and selecting the best matching vector as the representative vector of the group (lines 51, 57 of column 6). Then in step 330, as referenced above, compares each motion vector of a region to this best matched one. If the value of a motion vector is lower than a threshold, the best matching vector is chosen.

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Unlike the present claimed invention, there is no calculation of a stability parameter in Zhu. Additionally, S330 does not correspond to a comparison of a number of occurrences of the majority vectors. Furthermore, there is no calculation of a difference between a first number of occurrences and a second number of occurrences (of the majority vectors of the motion vector fields of each image) as in the present claimed invention.

The present claimed invention, takes into account the variation in the number of occurrences; i.e. the change in the number of majority vectors, to decide the reliability (specification page 9, lines 32-35). Zhu does not take into account the variation in the number of occurrences and therefore, neither discloses nor suggests "calculating a stability parameter Det_Stab(t) for the field, on the basis of a comparison (4), over two successive images, of the number of occurrences of the majority vectors of the movement-vectors fields of each of these images" as claimed in claims 1 and 11 of the present invention.

The Examiner further suggests that step S570 discloses the reliability criterion of the present claimed invention. Step S570 (column 6, lines 64-67) updates the vector profile PV(x, y) which takes into account vectors of previous images in order to select the best matching motion vector. Step S570 is not associated with the calculation of the reliability of a motion vector field as in the present invention. Therefore, Zhu neither discloses nor suggests "a stage of deciding the reliability (7) on the basis of this stability parameter" as claimed in claims 1 and 11 of the present invention.

Claims 2-3, 8, 9 and 12-14 are dependant on independent claims 1 and 11, respectively, and thus it is respectfully submitted that these claims are also allowable.

In view of the above remarks it is respectfully submitted that there is no 35 USC 112 compliant enabling disclosure in Zhu showing the above discussed features and that claims 1-3, 8, 9, and 11-14 are not anticipated by Zhu. It is thus, further respectfully submitted that this rejection is satisfied and should be withdrawn.

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Rejection of Claims 4-7 and 10 under 35 USC § 102

Claims 4-7 and 10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Zhu in view of Avis et al (U.S. Patent No. 4,864,398)

Avis et al. teach of a motion vector processing method in digital television images. The Examiner suggests that Avis et al. disclose calculating vectors in a time-domain for detection of a change of scenes in the video sequence. However, Avis et al., similarly to Zhu, neither discloses nor suggests "calculating a stability parameter Det_Stab(t) for the field, on the basis of a comparison (4), over two successive images, of the number of occurrences of the majority vectors of the movement-vectors fields of each of these images" nor "a stage of deciding the reliability (7) on the basis of this stability parameter" as claimed in claim 1 of the present invention.

The Examiner suggests that the combination of Zhu and Avis et al. disclose a vector reliability detection exploiting time-domain stability calculation technique. However, this combination either discloses nor suggests "calculating a stability parameter Det_Stab(t) for the field, on the basis of a comparison (4), over two successive images, of the number of occurrences of the majority vectors of the movement-vectors fields of each of these images" as in the present claimed invention. Additionally, the combination of Zhu and Avis et al. neither disclose nor suggest "a stage of deciding the reliability (7) on the basis of this stability parameter" as claimed in independent claim 1 of the present invention.

As claims 4-7 and 10 are dependant on independent claim 1 they are respectfully submitted as allowable for the same reasons as discussed above in reference to claim 1.

In view of the above remarks and amendments to the claims it is respectfully submitted that there is no 35 USC 112 compliant enabling disclosure in either Zhu or Avis et al. when taken alone or in combination showing the above discussed features and thus

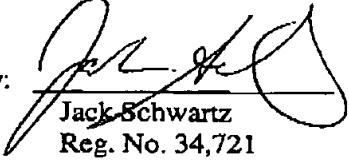
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claims 4-7 and 10 are not anticipated by Zhu in view of Avis et al. It is further
respectfully submitted that this rejection is satisfied and should be withdrawn.

Having fully addressed the Examiner's rejections, it is believed that, in view of the preceding amendments and remarks, this application stands in condition for allowance. Accordingly then, reconsideration and allowance are respectfully solicited. If, however, the Examiner is of the opinion that such action cannot be taken, the Examiner is invited to contact the applicant's attorney at the phone number below, so that a mutually convenient date and time for a telephonic interview may be scheduled.

No fee is believed due. However, if a fee is due, please charge the fee to Deposit Account 07-0832.

Respectfully submitted,
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